

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number  
**WO 2005/040706 A1**

(51) International Patent Classification<sup>7</sup>: F27D 3/18

(21) International Application Number:  
PCT/EP2004/011699

(22) International Filing Date: 16 October 2004 (16.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2003905978 21 October 2003 (21.10.2003) AU

(71) Applicants (for all designated States except US): **OUT-OKUMPU OYJ** [FI/FI]; Riihitontuntie 7, FIN-02200 Espoo (FI). **TECHNOLOGICAL RESOURCES PTY. LIMITED** [AU/AU]; 55 Collins Street, Melbourne, VIC 3000 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HOFFHAUS, Karsten** [DE/DE]; Wiesenstrasse 12a, 49685 Emstek (DE). **KAZMEIER, Günther** [DE/DE]; Rostocker

Strasse 22, 61130 Nidderau (DE). **FLORES-VERDUGO, Marco, Aurelio** [MX/MX]; Diego de Arana 149, Cumbres 4 Sector, Monterrey (MX).

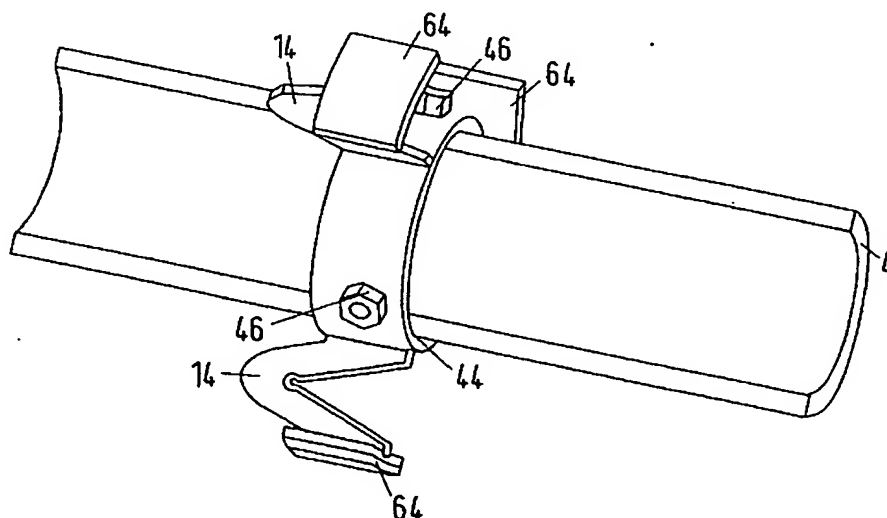
(74) Agent: **KEIL & SCHAAFHAUSEN**; Cronstettenstrasse 66, 60322 Frankfurt am Main (DE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: A PIPE SEGMENT FOR A TRANSFER LINE FOR TRANSPORTING HOT PARTICULATE MATERIAL



(57) Abstract: The present invention relates to a pipe segment including an outer (2) and an inner pipe section (4), with the inner pipe section being positioned within the outer pipe section, and a support means (44, 14, 64) supporting the inner pipe section in relation to the outer pipe section so that the inner pipe section can expand axially relative to the outer pipe section in response to temperature changes in the material being transported in the pipe segment. Furthermore, the present invention refers to a transfer line for transporting hot particulate material, such as iron ore fines, in a carrier gas, including a plurality of these pipe segments and to a process for transporting hot particulate material in a carrier gas in a direct smelting plant for producing molten metal from a metalliferous feed material, in particular between a pretreatment unit and solid delivery means in the form of lances for injecting the material into a direct smelting vessel.

WO 2005/040706 A1



**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*